

Poster #5

Poster Title:

A LC/MS Multi-Analyte Screening Method for Deleterious Organics in Water

Poster Abstract:

The determination of deleterious organics in drinking water, or soil extract, is one of the particular areas of the Homeland Security Presidential Directive (HSPD-9) that will impact the EPA. It mandates that the EPA Office of Water expand monitoring and surveillance systems for recognizing a terrorist attack, or a significant change in water quality. This is a daunting task because of the breadth of organics, coupled with the numerous water sources required to be monitored.

The question is raised...what organics are present in this water? Whether it is drinking water, surface water, soil leachates, or wastewater, where does a chemist begin to answer this question? Time is critical. The same applies to foods and beverages that use drinking water in processing.

The ability to perform a multi-analyte "screen" for numerous organics simultaneously would help maximize efforts to note the presence and significance of poisonous agents. This requires a broad analytical approach strategy utilizing the specificity of Liquid Chromatography / Mass Spectrometry (LC/MS and LC/MS/MS). This LC/MS strategy must be able to be exercised in the local field laboratories, the source of the immediate problem, where the resources and expertise is limited. This method incorporates the use of ESP libraries that can be used with single quadrupole instruments in the field, or, the same method with MS/MS for quantification and confirmation.

This poster presents the development of a single, multi-analyte screening strategy for numerous deleterious pesticides and herbicides in drinking water using HPLC/ Electrospray Mass Spectrometry. This work is being conducted in collaboration with USEPA Central Region Laboratory Region 5. Several analytical issues will be raised to stimulate audience discussion and to solicit input to evolve this LC/MS strategy into a validated screening method template.

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